Amendments to the Claims

Please cancel claims 1-41 and add claims 42-56.

42. (New) A mutein of human fibroblast growth factor 21 (FGF-21), consisting of human FGF-21 wherein a substitution of a charged and/or polar but uncharged amino acid for one or more amino acids at the positions from the group consisting of: glutamine 54, arginine 77, leucine 139, alanine145, leucine 146, isoleucine 152, glutamine 156, glycine 161, serine 163, wherein the numbering of the amino acids is based on SEQ ID NO:1.

43. (New) The mutein of Claim 42 wherein the charged amino acid is selected from the group consisting of aspartate, glutamate, and non-naturally occurring analogs thereof.

44. (New) The mutein of Claim 42 wherein the polar but uncharged amino acid is selected from the group consisting of serine, threonine, asparagine, glutamine, and non-naturally occurring analogs thereof.

45. (New) The mutein of Claim 42, wherein said mutein is selected from the group consisting of Leu139Glu-human FGF-21, Ala145Glu-human FGF-21, Leu146Glu-human FGF-21, Ile152Glu-human FGF-21, Gln156Glu-human FGF-21, Ser163Glu-human FGF-21, Ile152Glu-human FGF-21, Ser163Glu-human FGF-21, Arg77Glu-human FGF-21, and Gln54Glu-human FGF-21.

46. (New) A pharmaceutical composition comprising a therapeutically effective amount of a mutein of Claim 45 and a pharmaceutically acceptable carrier.

47. (New) A method for treating a patient suffering from obesity, type II diabetes, insulin resistance, hyperinsulinemia, glucose intolerance, hyperglycemia, or metabolic

syndrome comprising administering to said patient in need of such treatment a therapeutically effective amount of a human FGF-21 mutein of Claim 45.

48. (New) A biologically active peptide of a mutein of human FGF-21 consisting of a human FGF-21 wherein:

(a) a substitution of a charged and/or polar but uncharged amino acid for one or more amino acids at the positions from the group consisting of: glutamine 54, arginine 77, leucine 139, alanine145, leucine 146, isoleucine 152, glutamine 156, glycine 161, serine 163, wherein the numbering of the amino acids is based on SEQ ID NO:1; and

(b) one, two, three, or four amino acids are truncated from the N-terminus.

49. (New) A mutein of human FGF-21, consisting of human FGF-21 containing 1 or 2 engineered disulfide bonds wherein cysteine is substituted for two or four of the following amino acids in human FGF-21: leucine 21, alanine 26, leucine 33, leucine 118, lysine 122, or alanine 134, wherein the numbering of amino acids is based on SEQ ID NO:1.

50. (New) The mutein of Claim 49, wherein said mutein is selected from the group consisting of Leu21Cys-Leu33Cys/Leu118Cys-Ala134Cys-human FGF-21, Leu21Cys/Leu33Cys-human FGF-21, Leu118Cys/Ala134Cys-human FGF-21, or Ala26Cys/Lys122Cys-human FGF-21.

51. (New) A pharmaceutical composition comprising a therapeutically effective amount of a mutein of Claim 50 and a pharmaceutically acceptable carrier.

52. (New) A method for treating a patient suffering from obesity, type II diabetes, insulin resistance, hyperinsulinemia, glucose intolerance, hyperglycemia, or metabolic syndrome comprising administering to said patient in need of such treatment a therapeutically effective amount of a human FGF-21 mutein of Claim 50.

53. (New) A biologically active peptide of a mutein of human FGF-21 consisting of human FGF-21 containing 1 or 2 engineered disulfide bonds wherein:

(a) cysteine is substituted for two or four of the following amino acids in human FGF-21: leucine 21, alanine 26, leucine 33, leucine 118, lysine 122, or alanine 134, wherein the numbering of amino acids is based on SEQ ID NO:1; and

(b) one, two, three, or four amino acids are truncated from the N-terminus.

54. (New) The mutein of Claim 53 wherein said mutein is *des*-(His1Pro2Ile3Pro4)-Leu118Cys/Ala134Cys-human FGF-21.

55. (New) A pharmaceutical composition comprising a therapeutically effective amount of a mutein of Claim 54 and a pharmaceutically acceptable carrier.

56. (New) A method for treating a patient suffering from obesity, type II diabetes, insulin resistance, hyperinsulinemia, glucose intolerance, hyperglycemia, or metabolic syndrome comprising administering to said patient in need of such treatment a therapeutically effective amount of a human FGF-21 mutein of Claim 54.